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From: Lawler, Michael (DPH)
Sent: Thursday, January 13, 2011 3:18 PM
To: Salemi, Charles (DPH); Nassif, Julianne (DPH); Piro, Peter (DPH); Tan, Zhi (DPH)
Subject: evolving GHB protocol
Attachments: Optimal conditions forGHB analysis.doc

All,

In consideration of the evolving protocol for the determination of GHB and its analogues, I must register my several concerns of the apparent direction we are taking. Throughout my year long tenure of trying to develop an exacting analytical scheme with a broken HPLC, I have maintained that the most critical concerns were:

1) stabilizing and accounting for the conditions within which exhibits were handled. This would of course include temperature, pH, exposure to light, the aging of the sample and the degree to which the exhibit is manipulated in testing.
2) that any evolving protocol have an established rationale in the literature or be subjected to the repeated testing necessary to validate the scheme.
3) that a survey be conducted cataloging baseline levels of GHB occurring in beverages containing fruit residues. Most notably this would include wine, brandy and fruit juices found in mixed drinks/cocktails.
4) that a response curve be established for the sensitivity of any routine, whether it be derivatization dependent MS or HPLC, to determine what cut-off level should be set to account for any "naturally" occurring GHB in a given matrix of beverage.
5) recognize that any derivatization based analysis is indirect and should be accompanied with a determination of GHB gained by direct consideration of un-manipulated specimen. To that end I would maintain the best mode would be to:
    a) determine the presence of GHB by HPLC in a system with the capacity for fraction collection
    b) collect the GHB fraction and subject it to analysis by FTIR

Regrettably, my experiments over the past year were limited to a cursory test of noise in whiskey and a review that suggests corn syrup/sugar may be the masking factor confounding the HPLC signal.

My overall concern is that we are moving toward a certification scheme relying completely on derivatization, the developing protocol is unique to this lab and that we haven't yet accounted for a GHB cutoff level that may appear in fruit components of an exhibit.

I have attached a list of more specific concerns for your consideration.

Mike